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10/608,724	06/26/2003	Andreas Gustafsson	PA2271US	6930

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EXAMINER
PATEL, HETUL B

ART UNIT	PAPER NUMBER
2186	

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/608,724	GUSTAFSSON, ANDREAS
	Examiner	Art Unit	
	Hetul Patel	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2006*.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the communication filed on May 15, 2006.

Claims 1-42 are again presented for examination.

2.   Applicant's arguments filed on May 15, 2006 have been fully considered but they

are not deemed to be persuasive.

3.   The rejection of claims 1-42 as in the previous Office Action is respectfully

maintained and reiterated below for Applicant's convenience.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-9 and 11-42 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Fletcher et al. (USPN: 2002/0178238) hereinafter, Fletcher in view of Singh et al.

(USPN: 2004/0013113) hereinafter, Singh.

As per claim 1, Fletcher teaches a caching server comprising an answer cache

(i.e. the cache which stores the address information that is local within the terminal)

configured to access answer information (i.e. the address information); a referral cache

(i.e. the cache which stores referral information to forward the query to the remote

terminal's answer cache across the communication network) configured to store referral

information (i.e. the referral information); and computer instructions configured to

translate a domain name into DNS information by examining the answer cache and,

responsive to the results of examining the answer cache, examining the referral cache

(e.g. see paragraph [0008]). However, Fletcher does not clarify that the answer cache

stored answer information in a flat data structure. Singh, on the other hand, teaches

that it is beneficial to use the hash table (i.e. the flat data structure) to perform the

interface ID (i.e. the answer information) lookup because it reduces the number of

memory accesses and as a result of that, it is faster than the lookup in the tree structure

(e.g. see paragraph [0050]). Accordingly, it would have been obvious to one ordinary

skilled in the art at the time of the current invention was made to implement the flat data

structure in the answer cache to achieve the benefits described above.

As per claims 11, 13, 17, 26, 34 and 38-39, see arguments with respect to the

rejection of claim 1. Claims 11, 13, 17, 26, 34 and 38-39 are also rejected based on the

same rationale as the rejection of claim 1.

As per claim 2, the combination of Fletcher and Singh teaches the claimed

invention as described above and furthermore, Singh teaches that the flat data structure

is a hash table (i.e. 616 in Fig. 3) (e.g. see paragraph [0050] and Fig. 3).

As per claims 25, 29 and 35, see arguments with respect to the rejection of claim

2. Claims 25, 29 and 35 are also rejected based on the same rationale as the rejection

of claim 2.

As per claim 19, see arguments with respect to the rejection of claims 1 and 2.

Claim 19 is also rejected based on the same rationale as the rejection of claims 1 and 2.

As per claim 3, the combination of Fletcher and Singh teaches the claimed invention as described above and furthermore, Fletcher teaches that when the requested address information is not found at the terminal, the query from the local host is forwarded to the communication network (i.e. to the remote hosts) which stores the requested information (e.g. see paragraph [0008]). Therefore, the pointer/link has to be inherently stored/present in the local terminal cache that points to the remote hosts for the requested information. Fletcher teaches the further limitation of pointers pointing to a tree data structure (e.g. see paragraph [0005]).

As per claims 5, 20-23 and 27-28, see arguments with respect to the rejection of claim 3. Claims 5, 20-23 and 27-28 are also rejected based on the same rationale as the rejection of claim 3.

As per claim 4, the combination of Fletcher and Singh teaches the claimed invention as described above and furthermore, Fletcher teaches that the tree data structure (i.e. the hierarchical structure) is configured to store answer information and referral information (e.g. see paragraphs [0005]-[0006]).

As per claim 6, the combination of Fletcher and Singh teaches the claimed invention as described above and furthermore, Fletcher teaches that the caching server (i.e. the name server, 101 in Fig. 1) is also an authoritative server, i.e. a server which has the desired information (e.g. see Fig. 1).

As per claim 7, the combination of Fletcher and Singh teaches the claimed invention as described above and furthermore, Fletcher teaches that the caching server

(i.e. the name server, 101 in Fig. 1) is also a web server, i.e. the DNS server (e.g. see

Fig. 1).

As per claim 8, the combination of Fletcher and Singh teaches the claimed

invention as described above and furthermore, Fletcher teaches that the referral cache

is further configured to store the referral information in a hierarchical data structure

(e.g. see paragraphs [0005]-[0006]).

As per claims 31 and 41, see arguments with respect to the rejection of claim 8.

Claims 31 and 41 are also rejected based on the same rationale as the rejection of

claim 8.

As per claim 9, the combination of Fletcher and Singh teaches the claimed

invention as described above and furthermore, Fletcher teaches that the DNS

information includes an IP address (e.g. see paragraphs [0005]).

As per claims 12, 16, 18, 24, 32 and 42, see arguments with respect to the

rejection of claim 9. Claims 12, 16, 18, 24, 32 and 42 are also rejected based on the

same rationale as the rejection of claim 9.

As per claims 14 and 15, the combination of Fletcher and Singh teaches the

claimed invention as described above and furthermore, Fletcher teaches means for

storing data in the first cache such that a time required to examine the first cache is

essentially constant as a function of a number of labels comprising the domain name,

i.e. the first cache is the local cache, which uses the flat data structure and since the

number of cache entries to search in this flat data structure local cache is fixed/constant

all the time, a time required to examine the first/local cache is essentially constant as a

function of (i) a number of labels comprising the domain name and (ii) a size of the

first/local cache (e.g. see paragraph [0008]).

As per claim 30, see arguments with respect to the rejection of claims 14 and 15.

Claim 30 is also rejected based on the same rationale as the rejection of claims 14 and

15.

As per claims 33 and 36, the combination of Fletcher and Singh teaches the

claimed invention as described above and furthermore, Fletcher teaches the method of

storing data in a cache, the method comprising: requesting DNS information; receiving

data in response to the request; classifying the response received; and storing the data

received in either a referral cache or an answer cache based on the classification (e.g.

see paragraphs [0005] and [0008]).

As per claim 37, the combination of Fletcher and Singh teaches the claimed

invention as described above and furthermore, Fletcher teaches that the DNS

information includes a numerical address, i.e. the IP address (e.g. see paragraph

[0005]).

As per claim 40, see arguments with respect to the rejection of claims 1 and 33.

Claim 40 is also rejected based on the same rationale as the rejection of claims 1 and

33.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

5.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fletcher

in view of Singh, further in view of Ramanathan et al. (USPN: 6,182,136).

As per claim 10, the combination of Fletcher and Singh teaches the claimed

invention as described above but does not clearly teach that the DNS information

includes a Mx record. Ramanathan et al., on the other hand, teaches that by including

the Mx (the mail exchange) record in the DNS information, the email messages can be

easily exchanged across the hosts/web using the Mx record (e.g. see Col. 6, lines 25-

41). Accordingly, it would have been obvious to one of ordinary skill in the art at the

time of the current invention was made to modify the caching server taught by the

combination of Fletcher and Singh by including the Mx record in the DNS information as

taught by Ramanathan so the email messages can be easily exchanged across the

hosts/web. Therefore, it is being advantageous.

Remarks

6.   As to the remark, Applicant asserted that

   (a) The caching servers of Fletcher do not appear to teach a caching server

      including both "*an answer cache*" and a separate "*referral cache*".

   (b) Fletcher does not appear to teach "*a referral cache configured to store

      referral information*" as recited in claim 1.

   (c) The Examiner appears to be inferring a separate referral cache from the

      teaching of "referrals". It is the position of the Applicant that the separate

"referral cache" and "answer cache" recited in Claim 1 cannot be inferred from the teaching of "referrals". Such an inference would be improper because the referrals and other "best answers" may be stored in the same cache. This would eliminate the need to search and manage two different caches.

(d) Claim 1 includes the limitations "*examining the answer cache and, responsive to the results of examining the answer cache, examining the referral cache*". There does not appear to be any explicit teaching within Fletcher of performing a separate examination of a referral cache.

(e) The Examiner has not provided "some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings", in rejecting claim 1, as required to establish a *prima facie* case under 103.

(f) Further, in contrast with the Examiner's suggested combination, Singh specifically teaches away from the inclusion of more than a mere interface ID in a hash table. For example, in paragraph [0042] Singh teaches it "may be impractical to apply a ... hashing technique to the host portion of an IPv4 address." This specifically teaches away from the storage of the DNS "address information" of Fletcher within a flat data structure. An answer to a query, in the context of Fletcher that did not include host information would appear to be useless.

(g) Further, it is the position of the Applicant that the teachings of Singh could not

be combined with the teachings of Fletcher to produce a workable system, as

suggested by the Examiner. Singh teaches that *part* of a destination address

may be stored in a hash table.

Examiner respectfully traverses Applicant's remark for the following reasons:

With respect to (a) and (c), in response to applicant's argument that the

references fail to show certain features of applicant's invention, it is noted that the

features upon which applicant relies (i.e., a caching server includes both an answer

cache and a separate referral cache) are not recited in the rejected claim(s). Although

the claims are interpreted in light of the specification, limitations from the specification

are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057

(Fed. Cir. 1993). Examiner would like to suggest Applicant to edit the claim(s) to clearly

specify the '*separate referral cache*'.

With respect to (b), as disclosed in paragraphs [0030]-[0032], Fletcher does

teach that each name server stores query responses in its cache so it allows recursive

queries to be resolved much more quickly since all the name servers along the line will

have better referrals or actual answer in them (i.e. in the cache of them).

> "The name server that is queried consults its local database
> and/or cache for the requested data. If the queried name server does
> not find the data, the queried name server makes its best attempt to
> provide the querying name server with data that helps the querying
> name server in continuing the resolution process by issuing
> "referrals". A referral provides information about another name server
> that may have the requested address information, effectively
> redirecting the querying name server to another name server....On

occasion, a name server that processes a recursive query may not have information regarding the "closest" name server; this scenario may arise from a recent reboot of the name server host, <u>a totally expired cache</u>, or a request for a top-level domain that has never before been accessed." (Emphasis added)

Furthermore, it is clear from the quoted lines above that there is possibility at some instance, a name server that processes a recursive query may not have information regarding the "closest" name server (i.e. may not have the referral information) and this instance comes when a cache is totally expired, i.e. when the referral cache is totally expired. Therefore, Flether does inexplicitly teach about having a referral cache in each of the name server for storing the referral information.

With respect to (d), Fletcher does disclose in paragraphs [0008]-[0009] that the method includes a step of receiving the query from the local host requesting the address information, a step of determining whether the address information is stored in the local memory, and if not, then a step of forwarding the query to the server over a communications network. Therefore, if the cache hit is found, then the address information (i.e. the answer) is transmitted without looking for the referral but in the case of the cache miss, the query is forwarded to the server that stores the requested address information (i.e. sending the "referral" information).

With respect to (e), in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one

of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir.

1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case,

the motivation is found in the Singh reference in paragraph [0050]). It would have been

obvious to one ordinary skilled in the art at the time of the current invention was made to

implement the flat data structure in the answer cache so the number of memory

accesses is reduced and as a result of that, the address lookup in the flat data structure

is faster than the lookup in the tree structure (e.g. see paragraph [0050]).

With respect to (f) and (g), Fletcher teaches about storing the answers (i.e. the

'matching' address information) and referrals (i.e. the "closest" name server, which

would have the requested info) in the cache as described in rejection of claim 1 and

response to (a) above. If the answer, i.e. the exact match, is present in the cache, then

it will be found from the hash table, otherwise, it will use the tree data structure to find

the "closest" name server, i.e. the best referral.

Conclusion

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hetul Patel whose telephone number is 571-272-4184. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HBP

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